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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,593	10/28/2003	Ramanujam Ramabhadran	TEPS-0026	5367

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EXAMINER

RILEY, SHAWN

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/695,593

Applicant(s)

RAMABHADRAN ET AL.

Examiner

Shawn Riley

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on oct2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on feb2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>oct 03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Active Reset Forward Converter with full wave synchronous rectifier.

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Apparatus claims 1-10 and method claims 11-20 are rejected under 35 U.S.C. §102(b) as being fully anticipated by Rinne et al. (U.S. Patent 6,081,432). Rinne et al shows,¹ (in, e.g., the(ir) figure 5 and corresponding disclosure)

As to claim 1;

A multiple output converter including a primary output and at least one auxiliary output, comprising: a transformer (104) having a primary winding and at least one secondary winding; a switch (P), coupled to said primary winding, configured to impress an input

¹ Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Annotated claims begin with the phrase "As to claim". Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined words/phrases indicate objected to material.

Art Unit: 2838

voltage across said transformer, a first output voltage configured to be provided at said primary output via a magnetizing inductance associated with said transformer (at, e.g., junction between 106 and primary of 104); and an output inductor (111) coupled to said at least one secondary winding, a second output voltage (at, e.g., junction between 111 and 112) configured to be provided at said auxiliary output via said output inductor.

As to claim 2;

The multiple output converter as recited in Claim 1 further comprising a rectifier (109/110) coupled to said at least one secondary winding.

As to claim 3;

The multiple output converter as recited Claim 1 wherein said transformer comprises first and second secondary (107 is tapped at least by one point) windings.

As to claim 4;

The multiple output converter as recited in Claim 3 further comprising a synchronous rectifier having first (109) and second (110) synchronous rectifier switches coupled to one of said first and second secondary windings.

As to claim 5;

The multiple output converter as recited in Claim 4 wherein said first and second synchronous rectifier switches are cross-coupled (see, e.g., figure 4 and gate connections to 107/130 described in reference to figure 3 at column 3 lines 16-24).

Art Unit: 2838

As to claim 6;

The multiple output converter as recited in Claim 1 further comprising another switch (N) coupled to said primary winding.

As to claim 7;

The multiple output converter as recited Claim 6 wherein said switch is configured to conduct for a primary duty cycle (D) and said another switch is configured to conduct for a complementary duty cycle (1-D) (since this is a switching converter, each of the P and N switches work in opposition).

As to claim 8;

The multiple output converter as recited in Claim 7 wherein said primary duty cycle (D) of said switch is selected to provide at least one of substantial ripple cancellation associated with said multiple output converter and a substantially zero net DC bias across said transformer (use of the capacitance 106 provides this function—i.e., ripple cancellation and substantially zero net DC bias).

As to claim 9;

The multiple output converter as recited in Claim 1 further comprising an output capacitor (106) coupled to said primary winding.

As to claim 10;

The multiple output converter as recited Claim further comprising an output capacitor (112) coupled to said output inductor (111).

For method claims 11-20, note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated.

11. A method of operating a multiple output converter including a primary output and at least one auxiliary output, comprising: providing a transformer having a primary winding and at least

one secondary winding; impressing an input voltage across said transformer with a switch coupled to said primary winding; producing a first output voltage at said primary output via a

magnetizing inductance associated with said transformer; and further producing a second output voltage at said auxiliary output via an output inductor coupled to said at least one secondary winding.

12. The method as recited in Claim 11 further comprising providing a rectifier coupled to said at least one secondary winding.

13. The method as recited in Claim 11 wherein said transformer comprises first and second secondary windings.

14. The method as recited in Claim 13 further comprising providing a synchronous rectifier having first and second synchronous rectifier switches coupled to one of said first and second secondary windings.

15. The method as recited in Claim 14 further comprising cross-coupling said first and second synchronous rectifier switches.

16. The method as recited in Claim 11 wherein said impressing is performed in cooperation with another switch coupled to said primary winding.

17. The method as recited in Claim 16 further comprising causing said switch to conduct for a primary duty cycle (D) and said another switch to conduct for a complementary duty cycle D).

18. The method as recited in Claim 17 wherein said primary duty cycle (D) of said switch is selected to provide at least one of substantial ripple cancellation associated with said multiple

output converter and a substantially zero net DC bias across said transformer.

19. The method as recited in Claim 11 further comprising filtering said first output voltage with an output capacitor coupled to said primary winding.

20. The method as recited Claim 11 further comprising filtering said second output voltage with an output capacitor coupled to said at least one secondary winding.

Art Unit: 2838


Allowable Subject Matter

3. No claims are allowable over the prior art of record.

Conclusion

Any inquiry from other than the applicant/attorney of record concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197. Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Mike Sherry who can be reached at 571.272.2084. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any papers to be sent by fax MUST BE sent to fax number 703.872.9306. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at <http://pair-direct.uspto.gov> wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center).

January 05


Shawn Riley
Primary Examiner